

# Gál's sums and applications

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We evaluate the asymptotic size of various sums of Gál type, in particular

$$S(\mathcal{M}) := \sum_{m,n \in \mathcal{M}} \sqrt{\frac{(m,n)}{[m,n]}}$$

where  $\mathcal{M}$  is a finite set of integers. Elaborating on methods recently developed by Bondarenko and Seip, we obtain an asymptotic formula for

$$\log \left( \sup_{|\mathcal{M}|=N} S(\mathcal{M})/N \right)$$

and derive new applications.

*This is a joint work with Gérald Tenenbaum.*